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GENERAL SURGICAL NURSING

FIVE SHILLINGS STERLING
or
SEVENTY FIVE CENTS. U.S.

Paper prepared on behalf of the Norwegian Nurses' Association at the request of the Nursing Service Committee of the International Council of Nurses

General Surgical Nursing

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BRIEFLY speaking, surgical nursing is the total care of a patient who is in need of any kind of surgical treatment.

During the last century, and especially during the last 10—20 years, the science of surgery has evolved so rapidly, that it has been difficult even for the doctors to keep level with the development. They have been obliged to choose, not only surgery in itself as their speciality, but even a special area within surgery. The same has happened within nursing. No nurse is able to undertake any branch of nursing. She must choose her field, and within her chief area, she may have to exercise a further choice.

To separate the branches from the trunk will always prove fatal. They will, inevitably, weaken and fade. Any branch of surgery must get its nourishment from the whole medical trunk, and the same applies to surgical nursing. In addition, the main principles of good nursing will always affect the different branches. Where surgical nursing is concerned it is moreover of vital importance for the nurse to keep in contact with surgery itself, not in order to become a surgeon, but in order to understand what is being done, and to nurse intelligently and efficiently.

Modern surgery requires a high standard of technical skill from the nurse as well as from the surgeon. But understanding of surgery and technical skill are by no means enough to build up a high standard of surgical nursing. Such knowledge and understanding must include a considerable amount of anatomy, physiology and pathology, of bacteriology and pharmacology, as well as of nutrition and dietetics. And last, but not least, the nurse's knowledge must include a large amount of psychology and even of sociology.

Human beings have both mind and body. Psycho-somatic medicine has shown the influence of the one on the other. Because surgery is perhaps the most dramatic branch of medicine, it has too often been forgotten, or at least overlooked, that surgical nursing is more than assisting the doctor during the operation, the healing of a wound, and good general nursing. A few examples will show this. A patient with a fracture of the femur has been brought to the ward. Outwardly the most conspicuous feature calling for attention is the fracture. But in many cases the fracture is not the most serious injury to the patient, although it may be serious enough and need the very best technical nursing. It is of vital importance to understand what the shock and the complete change of living really mean to the patient, the economic effects it will have, the concern it will give the family, etc. If the hospital has its special social worker, she or he will take care of the economic and social aspects, yet the nurse must realize the importance of these problems for the simple healing of the fracture and the cure of the patient.

The many cancer patients of our day need warm-hearted psychological understanding, as they live in a state of hope, agony and despair. The diagnosis of cancer is always a shock to the patient, and even to his family. It usually means large operations, x-ray (and even radium) therapy, perhaps again and again. Too often it even means that the patient has come to life's end. Assisting the patient on this last journey does not belong to surgical nursing as a speciality, but it does belong to

the total care of any patient, and must be taken into consideration when surgical nursing is discussed.

It is upon this philosophy and upon the underlying ideas described above, that surgical nursing should be built.

THE SURGICAL PATIENT

The care of any patient involves understanding him and his total situation. Although different kinds of patients will be found within all kinds of wards, it is important and helpful to be aware of some special characteristics of the various groups.

The surgical patients are usually brought to the hospital by two main routes: either in an ambulance, as an emergency, or as a referal by a doctor, possibly after several examinations and tests. In the first case, the patient has had no time for consideration, and is in many ways saved from much of what the other one has had to go through. His greatest psychic harm may be the shock, the effect of which may not come forth until later, when everything else seems to work all right. This possibility must never be overlooked or undervalued. In the latter case, the patient has usually had to wait, perhaps for weeks, to get admission to the hospital, and thus has had plenty of time to get nervous, anxious and excited. When he at last arrives, he may seem rather upset. There are, of course, many types between these two extremes, but the nurse does well in remembering that something *has* happened before the patient's arrival at the hospital, and to realize that most of the patients have one exciting probability in common: an operation, with its risks and pain, in front of them. Their behaviour and mental condition may be due to underlying facts which we do not see at once, but which should be kept in mind.

The situation of the surgical patient has completely changed. At one time these patients stayed in bed till they had more or less recovered. Today, most of them have to get out of bed a day or two after even major operations. This means a huge strain to the patient, and actually, it should be considered as a part of the therapy *while staying in bed.* This new kind of therapy has too often been misunderstood by nurses. Today the surgical patient is deprived of the rest and quiet in bed which formerly prevailed, yet he is still in need of the same care he previously received. The effect of an operation is still the same, on mind as well as on body. The strain of modern surgical therapy demands a greater strength than most patients possess, and it is wrong to consider the patient to be recovered, just because he is out of bed. What the surgical patient has been deprived of, he must be given back through still more careful and understanding nursing care. He does not always need the same kind of nursing care, but he definitely needs nursing built on the same underlying conception and ideas.

THE SURGICAL UNIT

A surgical unit consists of:

A. The Admission Department
B. The General Ward (patient's ward)
C. The Post-operative Ward
D. The Operating-room Section

It is, of course, an advantage to work in a new and modern hospital, but good nursing is not dependent on modern buildings. Much good nursing is being done in

old, rather poor-looking houses, provided the hygienic conditions are satisfactory. What is important and absolutely necessary for good nursing today, is modern and sufficient equipment. A surgical ward of today may be characterized as a " non-stop ward ". Although a number of patients are still staying in bed for a long period, there is always a busy hurry of patients in and out, which influences the atmosphere of the whole unit. Smooth, effective and harmonious administration, as well as the good nursing care, will to a great extent be dependent on the equipment.

Wards will differ from country to country. It is the architects job, in co-operation with those working in the hospitals, doctors, nurses, etc., to find out what is the most suitable solution in the country concerned, the hospital concerned and the ward concerned. The development of medical science and therapy will influence the wards, their size, character and necessary facilities. Each kind of ward has its needs and characteristics, which must be thoroughly studied and taken into consideration. It is easier to give individual care to the patient in a smaller ward than in a big one, but several smaller wards will require a greater number of staff members than a few large wards. It therefore depends on what is considered to be most important in each case. It is essential to make an analysis of what needs the different wards are meant to cover. The role of geography, the social conditions of the area, communications, etc., as well as staff recruitment, must also be considered when planning hospitals.

The Admission Department

In some hospitals the administration of the admission department is in the same hands as the out-patient department, depending upon the size of the hospital, on its geographical situation, etc. Usually, there will not be the same rush in a hospital situated in an isolated part of the country, where people are rather scattered, as in the hospitals of the crowded cities. It may therefore be possible that the two departments and their staff will be more effectively administered by one than by two persons. In an area with a larger population, however, it is likely that the two departments will be busy all day and more efficient if they are independent of each other. In both cases there must be good co-operation between them.

In some hospitals the admission department is meant to be just for the mere admission and registration of the patient, who is taken directly to the ward. In other hospitals, the admission department is a real nursing ward, where the patient is cared for until the doctor's examinations are finished and the first orders are given. Some admission departments even have facilities for keeping patients over-night, so as not to disturb the patients' wards. In case of a suspicious diagnosis, the department should have facilities for temporary isolation.

The Department as a Registration Centre:

This system requires: waiting room
cloak-room
registration room.

At first sight it does not seem necessary to have a nurse on the staff of this " ward ". If, as is so often stressed, it is true that the first impression means so much to the patient, is it not of some importance, to him and to his relatives, that the first person who takes care of him is a nurse, who knows more about patients, hospitals, sickness, etc., than any layman? With the leadership in the hands of a nurse, the rest of the staff may be clerks and non-professional nursing personnel.

The Department as a "nursing ward"

This system requires: waiting room
cloak-room
bath rooms (at least two)
examining rooms (one for each bathroom)
bedrooms (usually two, and the number of beds two or three in each room)
linen room
kitchen
utility room

If desired: two isolation rooms, with utility rooms in common.

The size of this admission ward is taken from a hospital with about 200 surgical beds. The hospital is situated in a crowded area, and is usually a very busy hospital.

In many ways it is an advantage for any larger hospital to have a special admission department. It makes the administration of the hospital wards easier, it makes it quieter for the patients in the wards, and a general survey of the patient's condition with an economy of the doctor's and nurse's time. There is, however, the danger of making the department a mere collecting centre, a danger of which it is essential to be aware. It is up to the nurse to create a friendly, homelike atmosphere, which makes the patient feel safe.

The nursing care will include:

(*a*) Making a general survey of the patient's condition.
(*b*) Checking the admitting certificates.
(*c*) Taking necessary information on the family's address, telephone number, etc.
(*d*) Taking the patient's temperature, pulse, blood pressure and weight.
(*e*) Providing for routine examinations of urine, blood, etc.
(*f*) Providing for a bath or washing of the patient.
(*g*) Taking care of the patient's clothes and valuables.
(*h*) Assisting the doctor with his examination.
(*i*) Ensuring the carrying out of the doctor's orders.
If the orders are not to be carried out in this special department, the nurse has to:
(*j*) Pass the doctor's orders over to the nurse in charge of the general ward (this should be done orally as well as in writing).
(*k*) Provide for the transport of the patient to the hospital ward.

Much of the routine work may be carried out by non-professional staff, but the patient should always know that a professional nurse is in charge.

From the admission department the patient is brought to the ward, where again the nurse is the important helper. She gives him the necessary orientation, introduces him to the other patients, and tries as far as possible to make him feel relaxed and at home. At the same time she tries to get an impression of the state and the reactions of her new patient.

POST-OPERATIVE WARD OR RECOVERY ROOM

Just as the hospitals have found the admission department to be a useful section, serving the administration, the general ward and the patient, some hospitals have

established a special unit concerned exclusively with post-operative conditions.

It may be what is called a *Recovery Room*, which in some hospitals is part of the operating room section, in others of the ward. The same hospital of 200 beds, which has been mentioned earlier, has a small unit, belonging to the general surgical ward, serving as the *Post-Operative ward.*

They have found that the size of this ward should be:

Two rooms with three or four beds in each room;
Two single rooms (for seriously ill patients); and
The necessary utility-rooms to have the equipment within reach.

This ward should, if possible, be placed near the operating-room section. The supervision and the administration of this section may be under the administration of the head of the general ward, but it should nevertheless have its own staff and, of course, be under the supervision of the anaesthetist. In any case there must be close co-operation between those in charge of the recovery room and the ward where the patient will eventually be nursed. The purpose of this arrangement is to concentrate the control and nursing of those patients who, after operation, are in need of special observation and care. It makes the administration of the general ward easier, and minimises distress and anxiety on the part of new patients who are to undergo surgery. The patients having undergone a major operation are under constant supervision by a comparatively small number of staff, and they are protected from distui bance by the general ward. Hospitals which have tried this system find it to be of great advantage. The staff find it practical and rational, and patients appreciate it.

THE STAFF

It is difficult to give any certain directions or rules for the number and kind of staff to be employed. It depends largely on the conditions in the country concerned. Has the country enough educated nurses? If not, has it a non-professional staff which can take over, without harm to the patient, what the nurses cannot manage? The national conception of nursing, which differs considerably, must also be taken into consideration.

An example, from the hospital mentioned earlier, is given below. The wards have about 30 beds, and the staff consists of:

One head nurse
Two assistant head nurses
Two graduate nurses
Three senior students
Three junior students
One nurses' aide
Two maids

In each case the work to be done, and the staff available would have to be studied. Hospitals which do not have enough nurses available for the work will have to replace some of them by auxiliary personnel. In a surgical ward, where so much technical apparatus may come into consideration, it will be necessary to have a staff which is familiar with its use and much routine work may be done by nurses' aides.

The operating-room section requires a skilled, well-trained staff. But even in this ward much work may be done by aids. The number of staff in this section is dealt with on page 10.

The admission department has been mentioned earlier. *The post-operative ward* staff must be well educated and experienced surgical nurses. This ward is also a ward where the student nurse will have an excellent opportunity for study and learning, and where it is possible to use nurses' aides for routine work.

As the patient is taken from one ward to another, the nurses caring for him change frequently, and a *report system* is therefore required. It must be carefully and conscientiously worked out in detail, so that reports are given orally and in writing. Each patient should have his own chart, which goes with him from ward to ward. It should contain everything concerning his condition and the procedure for treatment. The writing should be in printed letters, giving no opportunity for misunderstanding or mistakes.

EQUIPMENT

The equipment of a surgical department can be divided into two main groups.

A. The ward equipment
B. The operating-room equipment.

The general ward equipment is the same as in other wards, but some special factors should be taken into consideration.

Firstly, there is the question of the bed. This is an expensive and important piece of furniture in any ward, and it is worth while to spend time and effort to find out what kind of bed best fits the purpose of the ward. The various diseases have their special needs, and the manufacturers are constantly experimenting with new types. It is essential to find a type which will cover the needs of most cases, and then, as far as possible, have some special beds for more unusual cases.

Patient-activity therapy requires equipment which at one time was considered useful, but which today is absolutely essential; a sufficient number of wheel-chairs, crutches, chairs for walking-exercises and the like.

The amount and kind of special equipment and technical apparatus, etc., will depend on the administration of the hospital. If the hospital has its central supply room, and communication between this department and the wards is smooth and flexible, it should be sufficient to have just enough supplies to serve the daily demand. In addition there ought to be some trays ready for emergency use, e.g., injections in case of haemorrhage, embolism, heart-attacks, etc. All beds must have facilities for oxygen and suction.

If the ward is supposed to be self-supporting, it is necessary to have an ample supply of equipment and it is recommended that there should be an analysis of the needs. What kind of surgery is the ward considered to serve? What treatment and complications must it be ready to meet? What kind of equipment will probably be required? The many firms which manufacture hospital equipment have excellent catalogues, which are useful and interesting to study. In the long run the money spent on equipment will prove worth while, as suitable and sufficient equipment will always influence the number of, and strain on, the staff. Shortage of linen, shortage of china, or syringes, instruments, etc., means a stress to the staff in a busy ward—and a modern surgical ward is always busy, so the shortage of equipment will inevitably influence the standard of nursing.

The recovery room. As this ward usually belongs to the operating room section it does not need any special equipment beyond what is needed for general nursing care. Any apparatus and instruments required may be provided by the operating

room, but it is preferable for the recovery room to have the equipment it needs always available on the spot. Beds may be brought from the general ward, but there are specially constructed recovery room stretchers* in some countries. Oxygen and suction facilities must be immediately available.

The post-operative ward. As mentioned earlier this ward is part of the general ward. It must be fully equipped with all facilities for good bedside nursing. It must always be prepared for emergencies, and should therefore have some trays ready for use. What is needed beyond that should be provided for by the operating-room section. As in all wards, facilities for oxygen and suction must of course, be here. What kind, and how much, equipment a ward of this kind needs will be a question of experience, but it is obvious that its effectiveness will depend to a great extent on good and ample equipment.

The operating department. The operating department described in this paper is for a surgical department of 200 beds. It has four operating theatres (size approx. 6 x 6 meters, 20 x 20 feet). The theatres are located two and two together, with scrub-up room and sterilizing room between them. Further, the department consists of: two anaesthetizing rooms, plaster room, cystoscopy room, work room, supply room, utility room, instrument room, laboratory, offices and doctors' and nurses' dressing rooms.

Preferably the theatres should have tiled walls, and floors of a terrazzo† composition, earthed as a precaution against explosions when explosive anaesthetic agents are used. Anti-static floorings may come into consideration depending upon national conceptions and fire regulations. There must be facilities for oxygen and suction in each theatre.

The *furniture* in the operating theatres should be as plain as possible and easy to keep clean. Tables and stands must be on noiseless casters. Furniture in a major operating room include:

One good operating lamp
One operating table
Two instrument tables (if desired, suture table according to catgut used)
One anaesthesia table
Two portable instrument stands (adjustable)
Two infusion stands
Two armbasin stands
Three stand boxes of various heights
Two buckets
Two adjustable stools
Cabinets for storage of suture material and supplies.

Instruments. Instruments are the surgeon's working tools, and, since patients' lives very often depend upon them, it is very important that they are of the finest quality, and that they are accorded the best of care. The operating room nurses should have a thorough knowledge of the various instruments commonly used, their reactions to heat and chemicals, and the basic rules for the care and sterilization of each type of instrument.

The types and quantity of instruments in the different operating departments must vary according to operations usually performed, and the surgeon's preference.

*c.f. Sandove & Cross, p. 21—23.
†Terrazzo consists of cement and marble.

As a general rule, one ought to have at least two complete basic sets of instruments for each theatre. This will save time, and eliminate noise and confusion between cases. As mentioned, it is practical to arrange instruments in basic sets for ordinary operations. These are supplemented by additional instruments required for specific surgical procedures. Necessary sterile sets for emergency operations should always be kept on hand.

Supplies. Operating dressings are arranged in packages or drums. The trend in many countries today is for more packages, fewer drums. The contents will vary in the different hospitals. A definite number of packages are kept sterile, corresponding to the number of operations performed each day. Sufficient supplies for 24 hours are necessary. Large packages, which contain all the necessary linen and gauze supplies for one operation, are most practical, and save much time in a busy operating theatre. All these packages may be made up in central supply—or if preferred—in the operating department.

Other necessary equipment such as rubber-goods, glassware, sets for transfusions and injections, etc., are usually taken care of in the operating room. An ample amount of this equipment must also be kept sterile for emergencies.

Autoclaving has proved to be superior to all other methods of sterilization. For instruments and articles that do not tolerate steam sterilization—like endoscopic equipment, electrical cords, and some kinds of fine instruments, other methods must be considered. For these, some sort of chemical sterilization is used. In many hospitals dry sterilization is used for syringes, needles and sharp instruments.

PRE-OPERATIVE TREATMENT

Any kind of surgical treatment will interfere with the physiological processes of the patient, and in addition there is the anaesthesia. Both will mean a certain risk for the patient, and to reduce this risk to the greatest possible extent, it is necessary to do a number of examinations, and to prepare for the operation. In emergency-cases the examination and preparation cannot be as thorough as when the patient has stayed in the ward for some time before the operation. Most hospitals have their own rules for pre-operative treatment.

The items which the nurse will be expected to do, or with which she should be familiar are:

(*a*) *Necessary examinations before operation*
Blood examinations: blood grouping, Rh-factor, different blood and platelet counts, haemoglobin estimation, etc.
Urine tests
X-rays
Examinations of the heart. Electrocardiogram.

The nurse is not generally supposed to do all these examinations herself, but she usually has the responsibility for seeing that they are done, e.g., by calling on the laboratory staff.

(*b*) *To improve the patient's general condition, physically and mentally*
Nourishing and high vitamin diet.
Introduction of fluids, either by mouth or intravenously.
Blood transfusions.

Drug therapy.
Good personal hygiene.
Orient and calm the patient.

(*c*) *To prepare the field of operation*

Bath, washing with soap and water, sterile preparation.
Shaving.

(*d*) *To prepare the stomach, intestinal tract and bladder*

Fasting, aspirating, stomach irrigation.
Cathartics by mouth, enemas.
Emptying the bladder (catherization)

(*e*) *Further preparation*

Notify family.
Ensure adequate clothing.
Accompany the patient to the operating room.
Make post-operative bed according to operation performed.

(*f*) *Premedication*

It is the doctor's responsibility to give orders about medication. Most hospitals have their own scheme for pre-operative medication. If no such scheme is set up, all orders should be given in writing in each case. The responsibility of the nurse then, is to see that the right medicine is given at the fixed time in the right way, and to observe if the effect is what is expected. Pre-operative medication is used:

1. To make the patient calm and quiet.
2. To prevent mucus in the respiratory tract.
3. To reduce the amount of anaesthetics which will be required.

It is important to remember that when the medicine has been given the patient should rest and relax and if possible sleep. The pre-medication is, usually, started the night before the operation, to make the patient sleep.

Antibiotics may be used prophylactically, but if so the order will be given in each case.

THE OPERATING ROOM SECTION

The work in the operating room section should be characterized by order, precision and aseptic technique, which should be carried out to the last detail. The active participation of the nurse during the anaesthesia and the operation gives her great responsibility. In this work more than usual consideration and observation are required.

The nurse leader must be a firm and experienced nurse. She, in co-operation with the chief surgeon, must work out the procedures which are to be used. She must work out procedure-books, and see that they are kept up-to-date; also she must see that pictures and illustrations of the different procedures such as surgical positions, drapings, etc., are available.

The nurse leader is also responsible for all work, and for equipment being in order at all times. She receives information about operations which are to be performed, and makes necessary preparations by assigning the different duties to the other

nurses. She is also responsible for the student nurses' work, and for their training during the time they spend in this section.

Personnel and personnel activities

In relation to the hospital in Norway previously mentioned it is felt there should be 14 operating room nurses (anaesthetist included), one clinical instructor, four post-graduate students, six student nurses in their third year, one nurses' aide and three maids. This is to staff an operating room section which consists of four operating theatres for a surgical division of about 200 beds.

All work is carried out as teamwork. It is of the greatest importance that every member knows her duties and carries them out precisely and conscientiously. Success depends to a great extent upon good co-operation within the team.

Every operation needs two nurses, one scrubnurse and one circulating nurse. In Norway, a " scrubnurse " means a nurse who is prepared for the operation like the surgeons: she has rendered her hands " surgically clean," is dressed in sterile gowns, etc., thus being able to assist the doctor with instruments, suture material, etc. A " circulating nurse " is a nurse who is free to circulate, assisting where it may be necessary, but never being allowed to touch anything sterile with her hands. She must, however, be a skilled nurse, who is able to see what is needed. A third member of the team is added in some countries—a nurse anaesthetist, who works under the supervision of a physician anaesthetist. In other countries only physician anaesthetists are used.

The scrubnurse is responsible for the instruments and equipment being in order and ready before and during the operation. She may drape the area of operation, and thus make it ready for the surgeon to start the incision. She must also know the process of operation and follow it step by step, so as to be able to hand the surgeon the right instruments and sutures. When a cavity has to be opened, her responsibility is a continuing one during the whole operation. She counts the sponges and checks that the needles which have been handed out are returned, and so on.

The circulating nurse has the responsibility for seeing that everything which is to be used during the operation is at hand, that the suction, electrical appliances and other surgical apparatus are in order, and that the x-ray pictures are in the viewing cabinet. She must assist in placing the patient in the right position on the operating table, she checks the shaving, washes the area of operation and adjusts the light. Besides, she helps the scrubnurse with the setting and placing of the sterile tables, opening of cans and packs, counting of sponges, and with all other work which may occur. She is also responsible for the specimens taken.

In Norway the cleaning of instruments, gloves and other equipment after the operation can be done by nurses' aides, while the orderlies clean the rooms.

Surgical positions

It is of the greatest importance that the patient is in the right position on the table, and the nurse must therefore be familiar with the positions for the different types of operations.

1. The patient must lie in a position which is as comfortable as possible.
2. A good view over the field of operation will make the surgeon's work easier, and shorten the time of the operation.
3. All necessary articles such as supports, pillows, etc., must be in place. This will save time and is especially necessary if the patient is already anaesthetized

before being brought to the operating-room.

4. Care must be taken that the patient's respiration is not interfered with.
5. The patient must be securely fastened, so that he does not fall off the table, every effort being made to prevent interference with the circulation in the limbs.
6. If he has dentures, it must be checked that these have been removed before the patient is placed on the table.

Preparing the area of operation

The importance of thorough preparation of the area of operation cannot be overstressed.

The area of operation implies not only the place where the surgeon makes his incision, but also a sufficient field around the incision. It may be necessary later on to enlarge the incision, or the sheets may slide, and if too small an area has been prepared, the surgeon, instruments and linen might easily be contaminated.

1. *The day before the operation*
   The site of operation must be thoroughly cleansed. Hair on an operative site is removed since its presence makes cleaning of the skin difficult.
2. *The day of operation*
   The skin and site of operation is prepared in the operating theatre according to the surgeon's instructions.

Draping the area of operation

The operating room section has certain rules concerning draping for different operations, and the nurses and post-graduate students must be acquainted with them. Many surgeons do the draping themselves but should the operating-room nurse do this, she must be sure where the incision will be.

Generally towels are placed around the incision field, fastened with mastix, and perhaps with towel clips, to the patient's skin, to prevent sliding during the operation. The towels must be placed 8—10 centimeters (3—4 inches) inside the limits of the disinfected area.

A laparotomy sheet, made of double thickness muslin, is used for most of the major operations. It is placed over the patient with the slit over the site of operation, and should be so big as to cover the whole table.

Anaesthesia

The administration of drugs by different routes has greatly reduced the risks of anaesthesia. Anaesthesia may be induced by inhalation, or the rectal route, and spinal anaesthesia may be supplemented by intravenous anaesthetics or analgesics. Muscle relaxation is accomplished by many new drugs, and by their administration the amount of anaesthetic required is usually reduced.

Intravenous infusions are given with major operations, usually saline 0.9 per cent, or glucose 5 per cent. This will be alternated with blood if necessary.

The anaesthetist, who has all equipment ready for use, receives the patient. As on the ward, the patient must be met with friendliness and understanding, and must not, even for a moment, be left alone. He should feel that he is the most important person, and that every one will do his best to help. Every attitude which inspires

confidence can do much to disperse fear and nervousness.

All unnecessary talk among the staff is forbidden. Whispering and loud conversation are both undesirable. Everything should proceed as naturally as possible. The uncovering of instruments and other equipment should be finished when the patient is taken into the operating room. During the induction of the anaesthesia a nurse should be with the patient, in order to help the anaesthetist in case the patient should get excited.

During the anaesthesia a record is kept on a special form. Blood pressure, pulse and respiration are taken every 10 minutes. The amount and time at which fluids and anaesthesia drugs are given must be noted. The general condition of the patient is precisely recorded. The anaesthetist takes the orders for post-operative treatment, e.g., drugs to relieve pain, suction apparatus, antibiotics, perhaps drains, tampons, etc., all of which are noted. When the operation is over, the anaesthetist assists in putting the patient to bed in the right position. He escorts the patient to the recovery room, and checks that the oxygen or suction apparatus, etc., are in order before the patient is left with the nurse responsible for him.

Spinal anaesthesia

Blood pressure and pulse are taken. Ephedrin may then be given at least 10 minutes before the anaesthesia. A doctor or a nurse should always sit with the patient when he has a spinal or local anaesthesia. He or she has to take the blood pressure and check the pulse, and record it on the anaesthesia chart, and is also there to help and comfort during the operation, and should, as far as possible, try to distract the patient's thoughts from what is going on.

POST-OPERATIVE CARE

Post-operative care consists of observation, further treatment, and bedside nursing. The patient is kept in the *recovery room* as long as is considered necessary, to provide better observation and quicker treatment if needed. This requires close co-operation between the anaesthetist and the nurse. Before the anaesthetist leaves the patient, all necessary information about what has to be done must be given, as well as orders for further treatment.

Patients are placed in position according to the operation performed, preferably on the side, to prevent mucus or stomach contents getting into the lungs in case of vomiting. After a spinal anaesthesia the patient should lie flat on his back for as long as the doctor orders.

The first observations, possible complications and treatment

(*a*) *Respiration.* The respiration should normally be quiet and rhythmic—18—20 per minute. It need not be alarming, however, if it shows a tendency to be quicker during the first hours, and it often does so when the patient is awakening after an anaesthesia. The reasons may simply be that it hurts to breathe deeply, and thus with a normal rhythm. However, if the patient has much mucus, it may be necessary to dry and suction him out, to keep the respiratory passages clear and open. If the patient shows symptoms of lack of oxygen, has restless and superficial respiration, cyanosis, or changes in pulse and blood pressure, oxygen is to be given.

(*b*) *Pulse and blood pressure* have to be taken at regular intervals and be recorded.

Irregularities may be a danger sign pointing towards complications such as circulatory failure. In this case circulatory stimulants should be given.

In circulatory failure, with falling blood pressure, the foot of the bed is usually elevated, and infusion of blood, plasma or plasma substitutes are generally indicated.

Haemorrhage will give much the same kind of symptoms and should be dealt with in the same way.

(*c*) *The wound* has to be checked for possible haemorrhage.

(*d*) *Suctioning*. The nurse must be acquainted with the different types of suction apparatus, e.g., electric suction and water suction, and see that they function correctly.

When abdominal or duodenal suction is used, irrigation and suction must be done at regular intervals, so that neither mucus nor stomach contents clog up the suction tube. When the thorax is suctioned, care must be taken that no air enters the pleural cavity. The patient must lie in a suitable position.

(*e*) *Treatment with medications.*

1. Medications to alleviate pain and to make the patient relax, according to doctor's orders.
2. Special medication, e.g., Lugol's solution in case of thyrotoxicosis, is given by drop enema, or by mouth.

(*f*) *Fluid balance*. After a major operation the patient usually gets nothing by mouth the day of operation, and has to receive fluids intravenously. The amount and kind of fluid is dependent on the patient's condition.

1. *Fluid supply*. Infusions of, for example, normal saline 0.9 per cent, glucose 5 per cent, calcium and sodium chloride, sodium bicarbonate 1.3—2.6—5.2 per cent.
2. *Loss of fluids*. Diuresis is charted. If the patient has difficulties in voiding, not more than 8 hours should elapse before catheterization is done. Later on it might be necessary to give him diuretic medications.

   As far as possible, drainings should be measured, also vomitus and aspirated contents of the stomach. The same applies to expectoration. An accurate record of fluid balance must always be kept.

From the recovery-room the patient is transported to the post-operative ward, or to the general surgical ward, where the check-ups, observation and treatment continue, and where the more special bedside nursing comes into the picture.

The bedside nursing

The patient who has gone through surgery has his own characteristics: he usually has a painful wound; the anaesthetics often produce headache and sickness; he feels weak and ill, his whole constitution feels out of order, and it takes days to return to normal.

Even when there does not seem to be any visible reason the temperature may rise, and also, there may be atony of the stomach and intestines, difficulties in voiding, etc.

Modern surgical treatment requires, as mentioned earlier, that the patient get

out of bed as soon as possible—one of two days after the operation. The nurse must pay attention to all the relevant facts.

First of all, there is the bed. It is a real art to make these patients comfortable in bed. Each case must be studied. Where is the wound? How can we possibly prevent a painful press on it? Many patients have been lying in a tiring position on the operating table and feel the whole body aching afterwards—how can we place them so that they find rest in bed?

Difficulties in voiding are mentioned above. In the function of the intestines, flatulence must be noticed. Treatment will vary according to the type of operation and the patient's condition. It may include medication, rectal tube or enema, according to orders.

Whether to give nourishment depends on the function of the intestines, and may vary from patient to patient. Hospitals usually have their own procedures.

Restlessness and insomnia must be reported and medication provided for.

Surgical nursing involves dressings and various kinds of treatment with which the nurse must be familiar, e.g., extention apparatus of different types. It is her duty to know the aim and to look for the correct position in bed.

Last, but not least, comes the daily nursing care, which follows the main rules for good bedside nursing. The patient should be taught to help himself as much as possible, but the nurse must be ready to assist him if his condition prevents him from being able to give himself the necessary care in personal hygiene. It is comfortable for him to be taken to the bathroom, but he must not be left alone there until he has recovered enough to be able to take care of himself.

Because patients are got out of bed so early they must be carefully assisted and observed.

Prevention of post-operative complications

1. Broncho-pneumonia or atelectasis:
   (*a*) Draught and cold air to be avoided
   (*b*) Good oral hygiene and clear air-passage to be maintained.
   (*c*) Upper part of the body usually a little elevated.
   (*d*) The patient should be taught to cough and get rid of mucus.
   (*e*) The patient should be taught breathing exercises. Sometimes the physiotherapist teaches the principles, and the nurse will see that the exercises are done regularly. The nurse should not, however, be dependent on a physiotherapist, she ought to be able to perform the teaching herself.
   (*f*) The patient should be turned frequently until such time as he can move himself.
   (*g*) The patient should be made active as far as possible and got out of bed as soon as possible.
   (*h*) Antibiotics may be given prophylactically according to order.
2. Infections of the wound are prevented by good aseptic technique.
3. Thrombosis and embolism may be avoided by keeping the patient active, by special exercises with the legs, using the muscles used in cycling, and by getting him out of bed early. Medical treatment may be given prophylactically, according to orders.

THE SURGICAL NURSE AND HER EDUCATION

High ideals for the surgical nurse's standards of nursing may be set, but how high they will prove to be in real life will depend on the personality of the nurse who

carries them out. It is always important to find the right person for the right job. It is important for the job, for the individual herself, and, in this case, it is most important for the patients concerned.

No doubt, many nurses working in surgical wards do not have the necessary qualifications for this particular job. Some just remain there because they cannot make up their minds which special field to choose; or they may be carried away by the exciting life which is so often found in a surgical ward. The nervous, unstable individual will be neither happy nor efficient in a surgical ward. She will be anxious and clumsy, afraid of taking responsibility, and often too emotional.

Who then, should choose surgical nursing, and what qualifications are necessary?

A surgical nurse must have a bright brain and a calm mind. She must be open to intelligent co-operation with doctors, nurses and everybody who may be involved, but at the same time she must be able to manage any situation that arises, and be ready to take the responsibility of acting without hesitation when the situation demands it. She must be calm enough to work with a steady hand whenever it is required, but on the other hand, she must be able to keep her emotions alive. The daily life in a surgical ward may easily make the nurse a mere routine worker, stern and emotionless. To some extent it is, of course, necessary to hide one's emotions, but the nurse who has to meet the emotional needs of the patient must be very careful not to lose her generosity of heart and mind.

Surgery is changing from day to day. The nurse must therefore be elastic and able to change her work according to the main changes of science. She must be vital and take interest in this changing world, be willing to study and to prepare herself continuously for her job.

The leaders and teachers should be aware of these facts. The large surgical wards are in need of an efficient staff, and for the nurses themselves it is most important to be assisted in a choice which will perhaps influence their whole lives.

As long as nursing education is still to a great extent founded on the apprenticeship system, the education programme will differ from hospital to hospital. Education must, however, have an aim, and the aim of surgical nursing may be stated like this:

1. To give the student a general understanding of conditions for which surgery is required, the reasons for these conditions, their symptoms and treatment.
2. To make the student understand the scientific principles of the care of surgical patients, and the relationship of anatomy, physiology, pharmacology, psychology and sociology to good and safe nursing care.
3. To teach the student the characteristics of surgical nursing and the importance and technique of good bedside nursing.
   General surgical nursing consists of:
   - (*a*) Pre-operative nursing care.
   - (*b*) The operating room procedure.
   - (*c*) The post-operative nursing care.
4. To teach the student:
   - (*a*) The difficulties and needs throughout convalescence.
   - (*b*) Rehabilitation of the patient and his way back to normal life within family and community.

THE CLINICAL TRAINING

A. In the ward

The practical experience should deal with the whole unit: the admission

department, the general surgical ward, the post-operative ward, the operating room section, including the recovery room. The length of time will differ, but it must not be dependent on staffing needs, but entirely a question of education.

During her training, the student is guided by the clinical instructors (nurse teachers in the ward) and the head-nurses (ward sisters). The students should be assigned to the same patients for a couple of weeks, and be allowed to give total nursing care to these patients, to get a better understanding of the patient as an individual, with emotional and social, as well as physical, needs. The co-operation with physiotherapists, social workers, home nursing and out-patients' departments and other agencies should be stressed.

B. In the operating room

The student's first learning experiences consist of observing, and of learning the principles of aseptic technique. How sterilization is accomplished. How a room is set up for operation follows this, together with the cleaning up after "clean" and "unclean" operations, etc. Furthermore, she should be taught the most generally used instruments and how to take care of them. When she is ready for it, she should be allowed to scrub up for minor operations, and, under supervision, to sit with a patient who is going through an operation where local or spinal anaesthesia is used.

Curriculum for the theoretical education

Pre- and post-operative care.
Anaesthesia.
Wounds and wound healing.
Surgical infections.
Haemorrhage and shock.
Neoplastic diseases.
Surgery of the respiratory system.
Surgery of the urinary tract.
Surgery of the vascular and lymphatic system.
Surgery of the alimentary tract.
Surgery of the integumentary system.
Surgery of the endocrine glands.
Surgery of the central nervous system.
Surgery of the musculo-skeletal system.
Surgery of the reproductive organs.
Aseptic operating room technique.
The nursing care of the various groups.

While the student is serving her time in the operating room the theoretical instruction should include:

Introduction to the work in the operating room, including the special claims of ethics.
Aseptic and antiseptic techniques, methods of sterilization.
Solutions of disinfectants, dilutions.
The use of instruments.
Scrubbing, gown technique.
Position and draping.
Preparation of operative areas.
Suture material.
Anaesthesia.
Operating room economy.

The final examination should include a written and a practical test, in which surgery and surgical nursing are included. In the practical test, the student is assigned to one or two patients for one day, and is thus given the opportunity to show her ability in giving independent, total nursing care.

After basic nursing education there should be a programme of post-basic education for the surgical nurse. At present the programmes are rather vague, and differ from country to country. *It should be quite clear, however, that post-basic education is required*, and that the education of those taking over leadership, whether it is in the general ward or in the operating room, should include administration and teaching principles in its programme. This cannot be too strongly emphasised.

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